IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

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Serial No:

Filed:

For: A DEVICE FOR DISPLAYING OBJECTS

DECLARATION

I, Andrew Scott Marland, of 11, rue de Florence, 75008 Paris, France, declare that I am well acquainted with the English and French languages and that the attached translation of the French language PCT international application, Serial No. **PCT/FR2004/003302** is a true and faithful translation of that document as filed.

All statements made herein are to my own knowledge true, and all statements made on information and belief are believed to be true; and further, these statements are made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any document or any registration resulting therefrom.

Date: May 26, 2006

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A DEVICE FOR DISPLAYING OBJECTS

The present invention relates to devices for displaying objects.

More particularly, the invention relates to a device for presenting objects, said device comprising:

- a leg;
- a display panel presenting a mean plane and having a top face adapted to carry objects to be displayed, and a bottom face;

said device further comprising coupling means adapted to hinge the display panel to the leg so that said display panel can take up at least one inclined position in which it is inclined relative to the horizontal;

the display panel further being adapted to pivot relative to the leg about a pivot axis that is normal to said mean plane, between at least first and second angular positions; and

- a locking mechanism adapted to lock said display panel at least in said first and second angular positions.

Document FR 2 809 943 describes an example of such a device. Unfortunately, in that device, the display panel is hinged by means of separate elements mounted behind the surface of the display panel, which induces considerable stresses in those elements, in particular when large weights are placed on the surface of the display panel, in the vicinity of its edges.

A particular object of the present invention is to mitigate that drawback.

To this end, in accordance with the invention, a device of the type in question is characterized in that the coupling means are disposed at least in part between said top face and said bottom face of the display panel.

By means of these provisions, the moment of force induced at the coupling by any type of object at the

surface of the display panel is small. The display panel is thus more robust and more stable.

In various embodiments of the invention, it is also optionally possible to use one or more of the following provisions:

- the coupling means comprise an inclination adjustment mechanism adapted to lock or to release the display panel selectively in rotation about a horizontal axis;
- the leg has a longitudinal axis, and said longitudinal axis, the pivot axis, and the horizontal axis meet at a point of intersection lying between the top face and the bottom face of the display panel;
- said coupling means are disposed at the center of said bottom face of the display panel;
- the first and second angular positions form an angle θ between them, and object support modules adapted to carry the objects to be displayed are fastened removably to the top face of the display panel by fastening means adapted to make it possible to fasten each support module in first and second positions relative to the display panel, said first and second positions forming said angle θ relative to each other (the objects to be displayed can thus be displayed in ordered manner for any inclination of the display panel, and the support modules can be positioned so that they are always the same way up for an external observer, the display panel being either in its first or second angular position, thereby making it possible to adapt the position of the display panel to the external environment, while also complying with a predefined layout for the objects to be displayed);
- said top face is provided with square storage spaces, each of which receives at least one object support module, said first and second angular positions are mutually perpendicular, and said first and second

positions of the support modules are mutually perpendicular;

- the top face of the display panel is provided with patterns that co-operate by interfitting with complementary patterns belonging to each object support module;

- the top face of the display panel and each of the object support modules are fastened to each other in removable manner by magnetic means;

- at least some of the object support modules are provided with wells adapted to receive, by interfitting, the objects to be displayed;

- the modules are of rectangular block shape of length a and of width b, where a is an integer multiple of b, and the top face of the display panel is of rectangular shape of length H and of width W, where W is an integer multiple of a and H is an integer multiple of b; and

- the modules are of rectangular block shape of length a and of width b, and the top face of the display panel is of rectangular shape of length and of width that are both integer multiples both of a and of b; and

- said modules are of length a substantially equal to twice their width b.

Other characteristics and advantages of the invention appear from the following description of an embodiment thereof, given by way of non-limiting example and with reference to the accompanying drawings.

In the drawings:

- Figure 1 is a front perspective view of a device of the invention;

- Figure 2 is a diagrammatic perspective view of an object support module;

- Figure 3a is a section view of the Figure 2 module;

- Figure 3b is a corresponding section view of the board ;

- Figure 4 is a perspective view of the top portion of the leg;

- Figure 5 is a partially exploded perspective view of a plate mounted on the leg;

- Figure 6 is a perspective view of the board mounted on the plate; and

- Figure 7 is a front perspective view of the Figure 1 device in another angular position.

In the various figures, like references designate elements that are identical or similar.

Figure 1 is a perspective view of a device of the invention. The device of the invention comprises a display panel standing on a leg 2 which is itself optionally disposed on a base 3 standing on the floor. The display panel 1 is shown in Figure 1 as being inclined up from the horizontal at an angle equal to about 60°. As explained below, the device is provided with a suitable mechanism for enabling the display panel to be disposed at any desired inclination relative to the horizontal within a range of inclinations that can, in particular, include a position in which the display panel is disposed horizontally.

The display panel of the example is in the shape of a rectangular block with thickness that is small compared with its width W and with its height H. It thus has a mean geometric plane (x; z) that is substantially parallel to its top and bottom main faces. The invention could however be applied to display panels whose top or bottom faces have other shapes, e.g. undulating or convex shapes. The display panel described herein comprises, in particular, a plate 22 (Figure 5) and a rigid support board 4 which is in the shape of a rectangular block, which is mounted on the plate 22, and on which object support modules 5 are mounted removably. The object support modules are fastened to the top face 4a of the support board 4 so as to cover it in part or in full, and they are also in the shape of rectangular or square

blocks, of length a and of width b. In the example shown, the modules are rectangular and of length a equal to twice their width b. Two modules placed side-by-side with their lengths contiguous then constitute a square storage space 11 (shown in dashed lines in Figure 1). Objects 6, 7 to be displayed are fastened removably or permanently to said modules 5. In Figure 1, only the two modules situated in the bottom left corner and the two modules situated in the bottom right corner of the figure carry objects 6, 7, such as, for example, pencils or sticks 6, powder samples 7, lipstick tubes, flasks or other elements. Certain modules can also carry advertising placards, mirrors, or other elements. In addition, a certain number of modules have been removed from the top right corner of the display panel 1 so as to make it possible to see the board 4 even though, in normal use, the board is often entirely covered with such modules.

Thus, the board 4 can have a regular ordered array of fastening patterns 8 disposed, for example, at a density of two per module. These fastening patterns are, for example, in the form of hollow cylinders provided in the board 4, each cylinder being provided in its center with a fastening guide 10 in the form of a spike fastened to the end wall of the cylinder and extending, for example, towards the top face 4a of the board 4. Depending on the embodiments, the fastening patterns do not necessarily have fastening guides 10 and are not necessarily cylindrical.

The fastening patterns are disposed in uniform and ordered manner on the board 4. For example, if the same module is held by means of first and second fastening patterns disposed in line along the length of the module, it is possible, in particular, to make provision so that, within the same storage space containing two such modules whose lengths are contiguous, the longitudinal distance between the fastening patterns of the same module is

equal to the distance between the first fastening patterns of each of the modules. A support module can thus be fastened in two positions relative to the display panel: by being aligned either with the length of the display panel or with the width thereof.

Figure 2 is a rear perspective view of a support module of the invention. The front face 51 of the support module serves to receive the articles to be displayed. Its rear face 52 is provided with two fastening patterns 12 of shape complementary to the shape of the fastening patterns provided in the board 4. In the particular example presented herein, the fastening patterns 12 are in the form of two cylinders 12a disposed, for example, on the central line of the module, and each provided at its center with a recess 12b adapted to receive the fastening guide 10.

Figure 3a shows such a module in section on the central line of Figure 2. The front face 51 is provided with wells 13 adapted to receive pencils 6 or other objects to be displayed, as lying down or as upright (on the right of Figure 3a, a well 13 is shown as empty). The objects to be displayed are, for example, inserted by a user into the wells 13 so as to be held rigidly relative to the object support module by interfitting.

The fastening face 52 of the object support module 5 is provided with two fastening patterns 12 as described above. Fastening can be achieved simultaneously or in alternation by co-operation between magnetic elements disposed as shown in Figures 3a and 3b which shows a portion of the board 4 that is facing the module 8 shown in Figure 3a. A first magnetized layer 14 is disposed in the vicinity of the bottom face of the module 5. Simultaneously, the top face of the board 4 is provided with a second magnetized layer 15 of magnetization complementary to the first layer, or provided with ferromagnetic elements.

Figure 4 shows the top portion of the leg 2, which portion is masked by the display panel in Figure 1. The leg 2 extends, for example, vertically along the axis (v). Its top portion carries an arm 16 extending, for example, vertically upwards from the leg 2 and having an opening 17, e.g. of ovoid shape, extending horizontally through the thickness of the arm about a horizontal axis (u). A shaft 18 is mounted in the opening 17 in stationary manner and symmetrically relative to the arm. The shaft 18 has a central portion that is complementary to the opening 17, and from which a rod extends on either side that has a first cylindrical portion 19 of smooth surface and then a second cylindrical portion 20 of larger diameter and carrying teeth 21 over all or some of its periphery.

The display panel is mounted on the leg via a plate 22 shown in perspective in Figure 5. The rear face of the plate shown in Figure 5 faces towards the leg 2. The rear face of the plate 22 is of circular shape and is provided with a central recess 23 inside which the inner portions 24 of two bearings are fixed that have teeth 25 complementary to the teeth 21 on the shaft 18. Around its periphery, the plate 22 is also provided with a certain number of through holes 26, e.g. of cylindrical shape, provided at regular angular intervals around the periphery of the plate. The front face (not shown in Figure 5) of the plate is, for example, plane and smooth.

Once the plate 22 is positioned on the leg 2 at the desired inclination, the teeth 21 on the shaft 18 co-operating with the complementary teeth 25 of the inner portions 24 of the two bearings, outer portions 30 of the bearings also having matching teeth 31 are fastened to the inner portions 24 so as to surround the shaft 18 at least in part. For example, fastening can be achieved by tightening screws (not shown) into tapped bores 32 in the bearings.

Figure 6 is a perspective view of the board 4 as seen from the rear. The board is provided with a recessed central zone 27 of shape complementary to the shape of the plate 22, on which it can thus be mounted. A ball bearing system 28 is mounted at the periphery of the central zone so as to enable the board to pivot relative to the plate 22. Balls 29 are disposed at the end wall of the recess at regular angular intervals. For example, two balls are disposed in diametrically opposite manner. A spring holds each ball in a deployed position in which it projects relative to the central zone 27. Each ball can however be retracted fully into the board against the thrust from the spring, in a retracted position.

The balls 29 are adapted to engage in the holes 26 of the plate when said plate is mounted in the central zone 27 and thus to prevent the board 4 from pivoting relative to the plate 22. When the balls are brought into the retracted position, the board is free to turn relative to the plate 22 until the balls 29 engage in other holes 26 corresponding to the board being in another angular position. For example, the board can be caused to turn through $\theta = 90°$ relative to plate, which is mounted stationary relative to the leg, between a first angular position shown in Figure 1 and a second angular position shown in Figure 7.

For the same inclination, the board is adapted to be suitable for turning about a pivot axis (y) that is normal to the mean plane (x; z) of the display panel, and to be suitable for being locked in a certain number of positions such as those shown in Figures 1 and 7. Relative to Figure 1, the board of Figure 7 has turned through 90° about the pivot axis (y). In addition, the modules have been rearranged on the display surface. Thus, the modules 5 of the storage space 11 for receiving the pencils 6 have been turned through 90° about the axis (y) in the opposite direction relative to the direction

in which the board has pivoted, and said modules are disposed in the bottom left corner of the display panel 1 in a new angular position. Similarly, the modules 5 of the storage space 11 for receiving powders 7 have been turned through the same angle and in the same direction and have been disposed in the bottom right corner of the display panel.

Each storage space can thus be disposed identically relative to an external observer, by causing the module to pivot relative to the display panel through an angle equal to the pivot angle through which the board is pivoted relative to the leg, in the opposite direction.

The display panel can also be inclined relative to the vertical over a broad range of inclinations. For this purpose, the plate 22 must be mounted at the desired inclination on the shaft 18, the teeth 25, 31 of the bearings co-operating with the teeth 21 of the shaft 18. The toothed angular sectors of the shaft 18 and of the bearings define the available range of inclinations.